

IN THE CLAIMS

Please cancel claims 1-3

Please amend the claims as follows:

Sub 3
4. (amended) Device for analyzing an object (2), particularly a radioactive waste package, that may contain fissile material or fertile material or both, the fissile material comprising M fissile isotopes and the fertile material comprising N fertile isotopes, where M and N are integer numbers equal to at least 1, this device being characterized in that it comprises:

A'
-means (8, 10) of irradiating the object by a neutron flux consisting of thermal, epithermal and fast neutrons and resulting from a sequence of initial fast neutron pulses, the thermal neutrons causing fissions in the fissile material and the epithermal and fast neutrons causing fissions in the fissile material and in the fertile material,

-means (4, 52) of counting neutrons, designed to measure prompt and delayed neutronic signals emitted by the object after each pulse, and

-means (6) of processing the signals thus measured, [designed to accumulate these signals and, after the last pulse, to obtain the sum of all signals,] [to use this sum to determine the contribution Sp of the prompt neutrons produced by the thermal fissions and the contribution Sr of the delayed neutrons produced by the thermal, epithermal and fast fissions and to determine the quantity of each of the M+N isotopes from Sp and Sr and from at least M+N-2 additional items of information related to the quantities of the M+N isotopes, expressing Sp and Sr as linear combinations of these quantities, the coefficients of these linear combinations being determined beforehand by calibration.

Sub 4
A2
6. (amended) Device according to claim 5, in which the thermalization means comprises a containment (10) that includes a central area (12) in which the object (2) will be placed and in which at least three sides are delimited by a thickness (14, 60) of moderator material, the neutron source (8) being placed on a fourth side of this containment and the neutron counting means (4, 52) being placed on the three sides between the central area and the thickness of moderator material, a thickness of multiplier material (22, 24, 50) being provided between the central area and the neutron source and between the central area and the neutron counting means.

1 7. (amended) Device according to claim 6, in which each neutron counting means is also
2 surrounded by a thickness (26) of neutron poison material.

1 8. (amended) Device according to claim 6, in which each neutron counting means is also
2 surrounded by a moderator material (28).

1 9. (amended) Device according to claim 6, also comprising a wall (36) made of neutron
2 poison and moderator materials that delimits the fourth side of the containment, the corresponding
3 thickness (223) of the multiplier material being between this wall (36) and the central area (12).

1 10. (amended) Device according to claim 6, also comprising means (46, 48, 68, 70, 72) of
2 rotating the object (2) within the central area of the containment.